

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-16. (Canceled).

17. (Currently amended) A method of ~~controlling~~ adjusting an impedance of a gas concentration sensor comprising the steps of:

detecting an impedance of the sensor from a voltage of the sensor and a current of the sensor;

detecting a gas concentration with the sensor;

changing the detected impedance in accordance with a predetermined operating parameter of the sensor in the step of detecting the impedance; and

limiting a change of the detected impedance to be within a predetermined change rate.

18. (Currently amended) A method of ~~controlling~~ adjusting an impedance of a gas concentration sensor as in claim 17, wherein a range for limiting the change of the detected impedance is variable with operating conditions.

19. (Currently amended) A method of ~~controlling~~ adjusting an impedance of a gas concentration sensor as in claim 18, wherein the range is increased as the change of the detected impedance is increased.

20. (Withdrawn-Currently amended) A method of ~~controlling~~ adjusting an impedance of a gas concentration sensor comprising the steps of:

detecting an impedance of the sensor from a voltage of the sensor and a current of the sensor;

detecting a gas concentration with the sensor;

changing the detected impedance in accordance with a predetermined operating parameter of the sensor in the step of detecting the impedance; and
outputting a signal of the detected impedance through a low pass filter.

21. (Currently amended) A method of ~~controlling~~ adjusting an impedance of a gas concentration sensor comprising the steps of:

detecting an impedance of the sensor from a voltage of the sensor and a current of the sensor;

detecting a gas concentration with the sensor; and

limiting the detected impedance to a limited range of change when the detected impedance changes more than a predetermined rate.

22. (Withdrawn) A method of controlling a gas concentration sensor comprising the steps of:

detecting impedances of the sensor from a voltage of the sensor and a current of the sensor a plurality of times; and

using an average of at least two of the detected impedances as a current detected impedance.

23. (Currently amended) A method of ~~controlling~~ adjusting an impedance of a gas concentration sensor as in claim 17, wherein:

the voltage and the current of the sensor are a voltage applied to the sensor and a current generated by the sensor, respectively; and

the gas concentration is detected from the current generated by the sensor.

24. (Withdrawn-currently amended) A method of ~~controlling~~ adjusting an impedance of a gas concentration sensor as in claim 20, wherein:

the voltage and the current of the sensor are a voltage applied to the sensor and a current generated by the sensor, respectively; and

the gas concentration is detected from the current generated by the sensor.

25. (Currently amended) A method of ~~controlling~~ adjusting an impedance of a gas concentration sensor as in claim 21, wherein:

the voltage and the current of the sensor are a voltage applied to the sensor and a current generated by the sensor, respectively; and
the gas concentration is detected from the current generated by the sensor.

26. (Withdrawn) A method of controlling a gas concentration sensor as in claim 22, wherein the voltage and the current of the sensor are a voltage applied to the sensor and a current generated by the sensor, respectively.